



Assumptions Work Group

“Where We Are Going”

Possible Building Blocks for
Future Study Plans

First Set of Building Blocks and Ranges

- ◆ Basin Hydrology & Climate
- ◆ Colorado River Supplies
- ◆ Energy Costs

Group A

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Basin Hydrology and Climate	Note: Ranges for climate change will remain largely qualitative for Update 2003. Groundwater and Surface Water Intrusion (e.g. Central Coast Drinking water and Bay-Delta System), Cloud Cover Changes	Essentially a repeat of history
		Changes in Snowfall/Rainfall Relationships and Changes in Sea Levels (w/o Changes in Total Precipitation)
		Greater Inter-Annual Variability
		Changes in Long-Term Annual Precipitation

Group A

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Colorado River Supply and Allocation	QSA, Interstate Transfer Agreements, ESA Concerns, Treaty Requirements, San Diego/Tijuana Canal, Allocation between multiple interests - AG/Urban/Environment, MWD, Desert Communities for range "Less than 4.4 Plan conditions	Greater than California's 4.4 plan
		Equal to California's 4.4 plan
		Less than California's 4.4 plan

Group A

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Energy Costs	Energy Market, Technology, Transmission Capacity (or lack thereof e.g. Bottlenecks)	Substantially higher
		As projected from current trends
		Substantially lower

Discussion:

How can this be improved?

Second Set of Building Blocks and Ranges

- ◆ Drinking Water Standards
- ◆ Agricultural Discharge Standards
- ◆ Environmental Water Dedication

Group B

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Drinking Water Standards	Delta Water use limitations, Water treatment cost, Technology, Blending, Point-of-use treatment	Tougher standards and new classes of contaminants are regulated
		Current and planned standards

Group B

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Agricultural Discharge Requirements	Regionality, Mechanism of enforcement, Land Retirement, Treatment, Change in farm practices, Drainage Capacity/Facilities	Tougher standards and new classes of contaminants are regulated
		Current and planned standards

Group B

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Environmental Water (Policy, Legal and Voluntary)	Instream Flow Requirements, Managed Wetlands, Native Vegetation, Flow Regime/Timing, Fisheries, Reuse, Tribal Interests, Public Trust, Habitat Restoration, Salton Sea, Project Mitigation, Water Quality, Currently Unmet Requirements	Additional water for in-stream uses (timing, temperature, volume of flows)
		Additional water for environmental use (CALFED ERP and plus additional habitat restoration)
		Current water dedication remains in effect
		Less stringent requirements coupled with flexible application and tradeoffs (e.g. CALFED Environmental Water Account)

Discussion:

How can this be improved?

Third Set of Building Blocks and Ranges

- ◆ Overall Population
- ◆ Population Distribution
- ◆ Population Density
- ◆ Per Capita Income
- ◆ Agricultural Acreage
- ◆ Crop Shifts
- ◆ Agricultural Land Retirement

Group C

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Overall Population and Demographic Profile	Demographic Profile	Higher than Department of Finance projections
		As projected by the Department of Finance
		Lower than the Department of Finance projections

Group C

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Population Distribution	Employment, Policy (e.g Establishing a Link Between Water Supply Planning and Land Development), Housing Cost	Relatively greater inland growth
		DOF Projections
		Relatively greater coastal growth

Group C

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Population Density	Parks Per Capita, Open Space/Habitat, Housing Type, Greenbelts	Relatively greater inland growth
		DOF Projections
		Relatively greater coastal growth

Group C

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Per Capita Income	Economic Growth, ...	Higher per capita
		Current trends
		Lower than current trends

Group C

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Agricultural Acreage	Market-Based Impacts on Cropping Acreage, Urban Encroachment, Programs/Incentives, Habitat Restoration	Leveling out at current acreage
		Continued slow decline due to water availability and urban encroachment
		Sharper decline
		Increase in agricultural acreage

Group C

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Crop Shifts	Market-based Impacts on Cropping Patterns, Programs/Incentives, Crop Market, Technology (Genetic, Irrigation), Water Pricing, Water Reliability	Shifts to higher water-using crops
		Same cropping patterns
		Shifts to lower water-using crops

Group C

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Agricultural Land Retirement	Policy-Based Impacts on ag land retirement, Note: Focus is on alternate use of water from retired land. Ag land retirement may or may not reduce use and/or increase supply. Drainage Constraints, Policy, Water Reliability, Crop Market, Water Quality, Third Party Impacts, Habitat Restoration	Additional Land Retirement
		Currently planned land retirement (e.g. CALFED or Westside S.J. Valley)
		Sharper decline

Discussion:

How can this be improved?

Fourth Set of Building Blocks and Ranges

- ◆ Urban Water Use Efficiency
- ◆ Agricultural Water Use Efficiency
- ◆ Water Pricing

Group D

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Urban Water Use Efficiency	Programs/incentives, Water Pricing, Technology, Saturation of BMP's, Repeal of Plumbing Code	Substantial increase in efficiency (e.g. technology or saturation)
		As projected using currently anticipated cost-effective BMP's
		Reduced efficiency (e.g. Plumbing Code Repealed)

Group D

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Agricultural Water Use Efficiency	Region-Specific Issues, Programs/Incentives, Ag Drainage Standards, EWMP's	Maximum achievable efficiency based on either: (1) an agreement upon a list of technologies; or (2) an upper cost limit.
		As projected using currently anticipated cost-effective EWMP's (CALFED ROD Implemented Statewide)
		As projected using currently anticipated cost-effective EWMP's (CALFED ROD implemented in solution area only)

Group D

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Water Pricing	Price Supports, Market Price, Marginal Cost of Delivery, Rate Structure, Price Elasticity, Environmental Cost and Third Party impacts, Marginal Cost as Common Denominator for Study Plan Comparisons	Market-Based System
		Current contracts and water rights system

Discussion:

How can this be improved?

Fifth Set of Building Blocks and Ranges

- ◆ Desalting
- ◆ Recycled Water
- ◆ Water Sales & Exchanges
- ◆ Groundwater Storage Facilities
- ◆ Surface Storage Facilities
- ◆ Integrated Surface/Groundwater management
- ◆ Water Conveyance Facilities

Group E

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Desalting	Technology, Cost, Source of Water (Brackish vs. Ocean), Production Capacity, Energy Cost, Comparison with other states and nations	Significant increase in production capacity
		Current level of growth (planned projects such as Huntington Beach, Long Beach for Monterey Bay)
		Significant decrease in production capacity

Group E

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Recycled Water (Treated)	Public Education/Acceptance, Drinking Water Standards, Dual Plumbing, GW Recharge, Increased Reuse by Mexico, Replacing Existing Supplies Vs. New Supply, Oil Field Produced Water	Substantial increase in reuse projects
		Existing and currently projected reuse projects (e.g. CALFED Stage 1)

Group E

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Water Transfers (Sales and Exchanges)	GW Banking, Land Fallowing, EWA, Third Party Impacts, State and Local Policy, Conveyance Capacity, New Water vs. Reallocated Water, Inter-Basin vs. Intra-Basin, Wheeling Cost, End User (ag, urban, environmental), Area of Origin	Substantial increase in water sales and exchanges (Free Market)
		Currently approved plus planned transfers (e.g. CALFED Stage 1, IID/MWD, other)
		Currently approved transfers

Group E

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Integrated Surface /Groundwater Management	System Operational Efficiency, Water Banking (Surface and Ground), Conjunctive Use, Any New Facilities, Flood Management Operations, Public Trust	Statewide (integrated) re-operation to maximize yield
		Existing and currently planned integrated management (e.g. CALFED Integrated Storage Program)
		Existing levels of integration

Group E

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Groundwater Storage Facilities	Direct vs. In-Lieu, Local Control, Energy Cost, Water Quality, Area of Origin Concerns	Substantial increase in groundwater storage
		Existing and currently planned groundwater storage
		Only existing storage

Group E

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Surface Water Storage Facilities	Siltation, Fish Passage Improvements, Water Quality, Recreation, Aging Infrastructure, Area of Origin Concerns, Public Trust	Additional storage implemented (e.g. CALFED ROD, local, other)
		Maintain existing surface storage capacity/yield
		Diminished storage capacity due to Siltation, aging facilities, etc.
		Several reservoirs phased out of use

Group E

Building Blocks, Considerations and Ranges

Factors	Considerations For Assigning Ranges	Possible Qualitative Ranges
Conveyance Facilities	Conveyance for New Surface/Groundwater Storage, Canal Lining, Intra-Basin Facilities, Fish Screening Facilities/Efficiencies, Reoperation, Removing Bottlenecks, Through Delta Conveyance, Wheeling Cost	Additional facilities (e.g. CALFED ROD, local, other)
		Existing and currently planned facilities (e.g. CALFED Stage 1)
		Reoperation of Existing Facilities

Discussion:

How can this be improved?

Special Factor - Group F

Building Blocks, Considerations and Ranges

◆ Catastrophic Events

Group F

Building Blocks, Considerations and Ranges

Factor	Considerations	Types of Events
Catastrophic Events	Events of significant statewide reliability disruptions and/or disruptions to hydrologic regions/regions of special interest	Earthquakes
		Flooding
		Levee Failure
		Toxic Spills
		Subsidence
		Wildfires